

USSR

UDC 539.3:551.243

VASIL'YEV, A. A., and GRUZIN, P. L.

"Interaction of Point Defects With Dislocations in Molybdenum Mono-Crystals"

V sb. Vnutr. treniye v metallich. materialakh (Internal Frictions in Metallic Materials -- collection of works), Moscow, Nauka Pub. House, 1970, pp 90-94 (from RZh-Mekhanika, No 12, Dec 70, Abstract No 12V507, Author's Abstract)

Translation: Results are presented from a study of the recovery of amplitude-independent and amplitude-dependent internal friction in the following classes of monocrystalline molybdenum specimens: deformed, annealed at different temperatures, and bombarded with electrons. Two recovery stages were found. The first recovery stage is associated with the migration of dislocational impurity atoms; the second stage is divided into two further substages. Redistribution of the interstitial atoms occurs in the first stage, followed by their immobilization at dislocations; however, dislocational immobilization is weak and when there is a rise in the amplitude of vibrations, dislocations part from their immobilization sites. The formation of Cottrell atmospheres occurs in the second stage. Electron bombardment affects only the first recovery stage. Bibliography: 4 entries.

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1/2 030 UNCLASSIFIED PROCESSING DATE--11SEP70  
TITLE--REDISTRIBUTION OF SULFUR IN TRANSFORMER STEEL -U-

AUTHOR--GRUZIN, P.L., ZEMSKIY, S.V., GRIGORKIN, V.I., MOSKALEVA, L.N.,  
SALKOVA, V.K.

COUNTRY OF INFO--USSR

SOURCE--METALLOVED. TERM. OBRAB. METAL. 1970, (2) 16-19

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--TRANSFORMER STEEL, SULFUR, COLD ROLLING, THERMAL DIFFUSION,  
RADIOGRAPHY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FAME--1983/1310

STEP NO--UR/0129/70/000/002/0016/0019

CIRC ACCESSION NO--AP0106097

UNCLASSIFIED

2/2 030 UNCLASSIFIED PROCESSING DATE--11SEP70  
CIRC ACCESSION NO--AP0106087  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MICRODISTRIBUTION OF S IN  
TRANSFORMER STEEL WAS STUDIED BY AUTORADIOGRAPHY. TWO CONDITIONS WERE  
STUDIED, (1) COLD ROLLED FOLLOWED BY DECARBURIZATION HEATING, (2) COLD  
ROLLED FOLLOWED BY HIGH TEMP. ANNEALING IN H OR VACUUM THEN GIVEN A 2ND  
COLD ROLL. S IS DISTRIBUTED UNEVENLY, SULFIDES WERE OBSD. EVEN  
FOLLOWING HIGH TEMP. HEATING. RATIO-METRIC ANAL. OF THE LAYERS SHOWED  
THAT FOLLOWING HIGH TEMP. ANNEALING, THE CONC. OF S INSIDE THE SHEET  
WAS LOWERED TO ONE THIRTIETH-ONE TWENTIETH AS COMPARED WITH THE INITIAL  
WHILE THE SURFACE OF THESE SAME LAYERS (UP TO 5 MU) INCREASED CONC.  
5-10 TIMES. THE ENRICHED S LAYER MUST BE REMOVED. THE STUDY OF C AND S  
DIFFUSION IN TRANSFORMED STEEL SHOWED THAT AT 900DEGREES, THE DIFFUSION  
OF S PROCEEDS AT ONE TENTH PRIME<sup>4</sup>, AND AT 1200DEGREES, AT ONE TENTH THE  
TIME OF C DIFFUSION.

UNCLASSIFIED

1/2 022 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--STUDY OF THE MOVEMENT OF CARBON IN TRANSFORMER STEEL BY MEANS OF  
RADIOISOTOPES -U-  
AUTHOR--GRUZIN, P.L. **G**

COUNTRY OF INFO--USSR

SOURCE--IZVEST. AKAD. NAUK SSSR, FIZ., FEB. 1970, 34, (2), 379-383

DATE PUBLISHED----FEB70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--TRANSFORMER STEEL, CARBON ALLOY, HOT WORKING, MAGNETIC  
PROPERTY, SILICON STEEL, RADIOACTIVE ISOTOPE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/0973

STEP NO--UR/0048/70/034/002/0379/0383

CIRC ACCESSION NO--AP0133059

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0133059

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MOVEMENT AND DISTRIBUTION OF C IN TRANSFORMER STEEL (FE, 3PERCENT SI) WAS STUDIED BY A RADIOISOTOPE METHOD. THE C DISTRIBUTION WAS DETERMINED LAYER BY LAYER IN THE STEEL AND CORRELATED WITH THE METHOD OF ORIGINAL PRODUCTION. A NON UNIFORM DISTRIBUTION OF C IN THE SI FERRITE DEVELOPED DURING THE ORIGINAL REFINING PROCESS AND SUBSEQUENT HOT OWRKING; THIS DISTRIBUTION REAMAINED INTACT IN ALL SUBSEQUENT OPERATIONS. A REDUCTION IN THE INITIAL C CONTENT WAS THE PRINCIPAL METHOD OF REDUCING INHOMOGENEITY IN THE STRUCTURE AND IMPROVING THE MAGNETIC PROPERTIES.

UNCLASSIFIED

USSR

ALEKSEYEV, L. A., GRUZIN, P. L., and USPENSKIY, M. N., Moscow Engineering Physics Institute

"Determining Mean-Square Displacements of Nuclei of  $\text{Fe}^{57}$  Atoms in Octahedral and Tetrahedral Positions of Iron-Yttrium Garnet Above  $T_C$  by the Nuclear Gamma Resonance Method"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 34, No 5, May 70, pp 955-956

Abstract: The mean-square displacements of nuclei of iron atoms were determined for the first time from the dependence of the probability of the Mossbauer effect on temperature; also determined were the effective characteristic temperatures  $\theta$  for iron in octahedral and tetrahedral positions of iron-yttrium garnet above the Curie temperature ( $T_C = 548^\circ\text{K}$ ). This garnet was selected, since the ratio of the number of iron ions in the a- and d-positions is known (2:3), thus making it possible to make absolute measurements of these quantities. The values of the characteristic temperature  $\theta$  for iron atoms in the a- and d-positions and also the values  $(\bar{x}^2)^{1/2}$  for the nuclei of the iron atoms in these positions

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ALEKSEYEV, L. A., et al, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya,  
Vol 34, No 5, May 70, pp 955-956

were measured and graphed. The graph shows that the mean-square displacements of the nuclei of iron atoms in the a- and d-positions differ by more than 10%, indicating a considerable difference in the binding forces in sublattices of ferrite garnets. The dependence of  $\theta$  on temperature demonstrates the inapplicability of the harmonic approximation for ferrites at temperatures above  $T_C$ . The ratio  $d \ln \theta / dT$  is taken as a measure of anharmonicity; it increases sharply above  $T_C$  and appears more strongly in the octahedral positions. The anharmonicity disappears close to  $T_C$ .

USSR

UDC 621.375.421.13:621.372.412

BELYAKOVICH, E. I., GRUZINENKO, V. B., YAROSLAVSKIY, M. I.

"Problem of Tuning Quartz Resonators with Shear Oscillations with Respect to the Circuit"

Elektron. tekhnika. Nauchno-tekhn. sb. (Electronic Engineering. Scientific and Technical Collection), 1970, ser 9, vyp. 2, pp 96-98 (from RZh-radio-tekhnika, No 9, Sep 70, Abstract No 9D276)

Translation: A procedure is recommended for adjusting the frequency of rectangular-shape piezoelements with various relations of the transverse dimensions insuring minimum variations of the equivalent parameters and frequency temperature characteristics. There are two illustrations and a three-entry bibliography.

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USSR

UDC 621.373.421.13:621.371.412(048.6)

GRUZINENKO, V. D., DASHKIN, YU. M., YAKOSHEVICH, N. I.

"Piezoelectric Resonator"

USSR Author's Certificate No 254578, Filed 3 Jul 68, Published 9 Mar 70.  
(from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 902827)

Translation: This author's certificate introduces a piezoelectric resonator executed in the form of an XT or YT-cut quartz element equipped with a system of electrodes connected to wire leads. In order to improve the suppression of first-harmonic oscillations when separating oscillations at the second harmonic frequency, the system of electrodes is formed by rectangular electrodes arranged symmetrically on two sides of the quartz element, and the wire leads of all the electrodes are located on the diagonals of these electrodes at a distance of 0.53-0.34 of the length of the diagonals from the vertexes of the central angles, and they are connected to the stationary base. There are four illustrations.

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YUSHKOV, V. I., POTANIN, V. N., KHOLODOV, V. K., GRUZINOV, V. K., SHCHU-  
KIN, Yu. P.

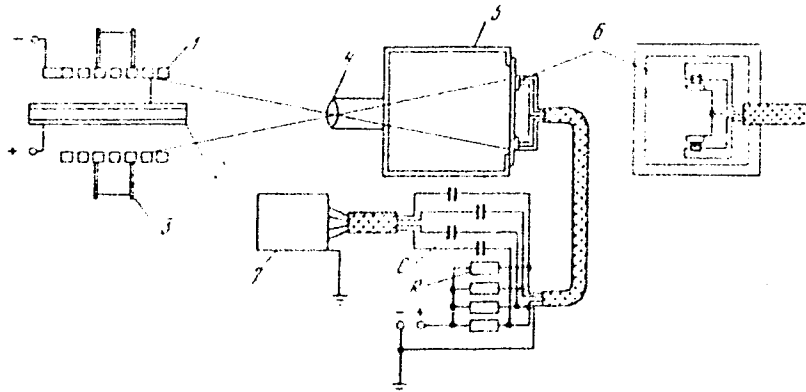
"A Plasmatron With Magnetic Arc Stabilization"

Moscow, Khimiya i Fizika Niskotemperaturnoy Plazmy, Moscow University  
Press, 1971, pp 62-64

Abstract: The authors investigate the behavior of an arc on a pilot model of a plasmatron with magnetic stabilization (diagrammed in the figure). The central uncooled graphite electrode 2 with outside diameter of 30 mm and the outer water-cooled copper electrode 1 of helical type with inside diameter of 50 mm are connected to a DC source. The outer conductor is surrounded by stabilizing coil 3 connected to an AC source. The arc was struck by a short, high-voltage rf pulse. The arc is rotated by the magnetic field produced by the outer electrode and the stabilizing coil. The shape of the outer electrode converts the arc to a helical line. Current alternation through the stabilizing coil reverses motion of the arc. Lens 4 projects a full-size image of the arc on the ground glass at the rear of camera 5. Four type ISK-1 resistors are fastened by pairs on the 1/3

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YUSHKOV, V. I. et al., Khimiya i Fizika Nizkoterturnoy Plasmy, Moscow University Press, 1971, pp 62-64



ground glass as shown by 6. Each of these resistors is connected in series to a load resistor R and a DC voltage source. The rotating arc is periodically projected on the photoresistors, with a resultant increase in the drop in voltage across load resistors R. The variable component of the

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YUSHKOV, V. I. et al., Heating of Media by Plasma, Moscow University Press, 1971, pp 12-8.

voltage from the load resistors is sent through capacitors C to the loops of oscilloscope Z. Preliminary analysis of materials obtained by this method shows that the proposed plasmatron design should be suitable for heating various gaseous and powdered materials. Two figures, bibliography of four titles.

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USSR

UDC 624.131.542:628.247

ARTYUKOV, YE. I., GRUZINOV, V. V., MALKOVSKIY, O. N.

"Settling of the Ground Surface and Building Foundations in Sewer Tunnel Construction"

Moscow, Osnovaniya, fundamenty i mekhanika gruntov, No. 5, 1971, pp 23-24

Abstract: Data on the character and magnitude of surface settling and its effect on foundations of existing buildings obtained from actual observations and laboratory studies on models are presented. It is noted that in the majority of large cities in the Soviet Union sewers are laid by the closed method, making it possible to conduct work without damaging streets, disrupting traffic, and removing buildings. The tunnels in Leningrad are at a depth of 8-15 m in Quaternary strata. Over sections of a considerable extent there is contact of two types of rocks with different properties and under these conditions the slightest disruption in their equilibrium effects the propagation of deformations over the entire massif up to the surface of the earth. It is shown that geological conditions in the vicinity of underground sewers and the degree of nonuniformity in the settling of the earth's surface have a considerable effect on the degree of deformation of foundations. The degree of deformation of the foundations of buildings

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USSR

ARTYUKOV, YE. I., et al, Osnovaniya, fundamenty i mekhanika gruntov, No. 5, 1971, pp 23-24

depends on the magnitude and nonuniformity of the settling of the surface and the position of the building in a trough. Foundations located at a distance  $0.5 H_T$  from the axis of a tunnel, where  $H_T$  is the depth of the tunnel, are shown to be under the most unfavorable conditions. The characteristic form of building deformation is vertical cracks throughout the entire structure that open as much as 40 mm and an inclination of the building walls toward the sewer working. The authors feel that these results make it possible for builders and designers to establish a zone for the development of settling on the earth's surface before beginning underground work and to anticipate required safety measures.

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UDC 630.95.

USSR

MEL'NIKOV, N. N., STONOV, L. D., KHASKIN, B. A., GORDON, O. G., USACHEVA, N. M.,  
SAELINA, I. V., GRUZINSKAYA, N. A.

"New Herbicide and Desiccant -- Bipyridyl Phosphate"

V sb. Khim. sredstva zashchity rast. (Chemical Means of Plant Protection --  
collection of works), No 1, Moscow, 1970, pp 167-173 (from RZh-Khimiya, No 12,  
Jun 72, Abstract No 12N492)

Translation: A series of phosphorus-containing salts of 4,4'-bipyridylum  
with the formula  $[NC_5H_4-C_5H_4NCH_3]^+[(RO)OP(=X)YR']^-$  (I) (R, R', X, Y, the yield  
in %, the melting point in °C,  $n_{20}^D$  are presented): Me, Me, O, O, 58, 95-102,  
--; Me, Pr, O, O, 60, --; 1.4190; Me, Me, S, O, 59, 210 (dil.), --; Me, Me, S,  
S, 51, 106-7.5, --; Me, 2,4,5-Cl<sub>3</sub>C<sub>6</sub>H<sub>2</sub>, S, O, 67, 84-5, --; Et, 2,4,5-Cl<sub>3</sub>C<sub>6</sub>H<sub>2</sub>,  
S, O, 44, --, 1.6141 were synthesized. In order to obtain I, equimolecular  
amounts of 4,5-bipyridyl and esters of phosphorus acids were heated for 15-20  
hours in a solvent (C<sub>6</sub>H<sub>6</sub>, alcohol, petroleum ether) at 40-100°. With alkyla-  
tion of the 4,4'-bipyridyl in an excess of esters of phosphorus acids with

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MEL'NIKOV, N. N., et al., Khim. sredstva zashchity rast., No 1, Moscow, 1970, pp 167-173

heating (70-100°) for 10-15 hours in the absence of a solvent or at 20-25° for 2-3 weeks, substances with the formula  $[\text{CH}_3\text{NC}_5\text{H}_4-\text{C}_5\text{H}_4\text{NCH}_3]^{2+}[(\text{RX})\text{OP}(\text{O})\text{YR}']^{2-}$

(II) are obtained (R, R', X, Y, the yield in %, and the melting point in °C are presented): Me, Me, O, O, 63, 117-120 (IIa); Me, Me, S, O, 34, 52-61.5; Me, Et, S, O, 30, 78-80; Me, Me, S, S, 68, 138 (dil.); Me, Et, S, S, 61, 118 (dil.); Me, 2,4,5-Cl<sub>3</sub>C<sub>6</sub>H<sub>2</sub>, S, O, 80, 166 (dil.). The IIa has low toxicity for warm blooded animals, significant herbicidal activity and a high defoliating effect.

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UDC 632.95

~~GRUZINSKAYA, N. A.~~, ZUBKOVA, N. F., STONOV, L. D.

"Analysis of Residues of Bipyridylphosphate in Potatoes"

Tr. 2-go Vses. soveshch. po issled. ostatkov pestitsidov i profilakt. zagryazneniya imi produktov pitaniya, kornov i vnesh. sredy (Works of the Second All-Union Conference on the Investigation of Pesticide Residues and Preventive Contamination of Food Products, Feeds and Environment), Tallin, 1971, pp 273-275 (from RZh-Khimiya, No 12, Jun 72, Abstract No 12N501)

Translation: For analysis of bipyridylphosphate (I) in potatoes, the sample is boiled with water in an acid environment for 5 hours, the filtrate is passed through a column with an ion-exchange resin dowex 50 W x 8, it is washed with water, HCl and a 2.5% solution of  $\text{NH}_4\text{Cl}$ , the I is washed with a saturated solution of  $\text{NH}_4\text{Cl}$ , it is reduced by  $\text{Na}_2\text{S}_2\text{O}_6$  and spectrophotometrically analyzed at 396 nm. The degree of detection of I is 50%.

USSR

UDC 632.95

NADTOCHAYA, O. G., GRUZINSKAYA, N. A., and STONGV, L. D.

"Determination of Butyphos in Cotton Plants"

Tr. 2-go Vses. soveshch. po issled. ostatkov pestitsidov i profilakt. zagryazneniya imi produktov pitaniya, kormov i vnesh. sredy (Works of the Second All-Union Conference on Investigation of Residues of Pesticides, and Prevention of Pesticide Contamination of Foodstuffs, Fodder and the External Environment), Tallinn, 1971, pp 1790180 (From KZh-Khimiya, No 11, Jun 72, Abstract No 11N459)

Translation: The study material is pulverized, triturated with quartz sand, the homogenate is washed with acetone, filtered, 0.3 ml of concentrated HCl is added to the acetone extract, the mixture is evaporated, and the residue is dissolved in ethanol and chromatographically analysed on silica gel in a fixed layer in the hexane-acetone system (5:1), and developed with a bromo-phenol reagent. The sensitivity of the method is 0.5-1  $\mu$ g. Within a half hour after applying butyphos to the leaf blade, the compound is detected in the petiole and in the zone of attachment of the leaf. The leaf blade tissue interacts with the butyphos and the content of the chemical decreases.

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UDC 631.547:633.51

STONOV, L. D., GORDON, O. G., ZUEKOVA, N. F., and GRUZINSKAYA, N. A., All-Union Scientific Research Institute of Chemical Plant Protectants

"Transformation of Butyphos in Medium-fibrous and Fine-fibrous Cotton Plants"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 9, No 6, 1971, pp 54-56

Abstract: To study the interrelation between the transformation of butyphos in plant tissues and its defoliating activity, the authors determined the butyphos content of cotton plants by the method of thin layer chromatography. It was found that leaf blade tissues and explants (isolated abscission zones) of both fine-fibrous and medium-fibrous cotton show the same response to butyphos, viz. they decompose it. The decrease in the butyphos content of the leaf blade of medium-fibrous cotton apparently is not the direct cause of accelerated absciss layer formation in leaves.

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UDC 632.95

MEL'NIKOV, N. N., NEASKIN, E. A., STOKOV, L. D., SABLINA, I. V., GORDON, O. G., and GRUZINSKAYA, N. A.

"Desiccant-Defoliant"

USSR Authors' Certificate No 249113, filed 28 Mar 63, published 20 Jan 70 (from Izv-Khimiya, No 20 (II), 25 Oct 70, Abstract No 20 16242 by N. A. GRUZINSKAYA)

Translation: Salts of 4,4'-dipyridylum of general formula  $\left[ (Me)_n C_5H_3C_5H_3 (Me)_2 \right]^+ \left[ (MeO)_2 P(X) O \right]^-_n (I)$ , where  $X = O$  or  $S$ ,  $n = 1$  when  $m = 2$  or  $n = 0$  when  $m = 1$ , are used as plant desiccant-defoliants.  $I$ 's can be used for the desiccation and defoliation of cotton, potatoes and fruit crops in doses of 0.3-2.5 kg/ha.

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1/2 021 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--EXPLANTS AS TEST OBJECTS FOR STUDYING THE DEFOLIATING ACTIVITY OF  
NEW COMPOUNDS -U-  
AUTHOR--(04)-STONOV, L.D., ZUBKOVA, N.F., GORDON, O.G., GRUZINSKAYA, N.A.  
COUNTRY OF INFO--USSR  
SOURCE--AGROKHIMIYA 1970, (1), 132-8  
DATE PUBLISHED-----70  
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES  
TOPIC TAGS--DEFOLIANT AGENT, ORGANIC PHOSPHORUS COMPOUND, MAGNESIUM  
COMPOUND, CHLORATE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1995/0443 STEP NO--UR/0485/70/000/001/0132/0138  
CIRC ACCESSION NO--AP0116109  
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0116109

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPTS WITH BUTIPHOS AND MG(CLO  
SUB3) SUB2 AS THE MOST COMMON DEFOLIANTS USED FOR DEFOLIATION OF COTTON  
SHOWED THAT EXPLANTS OF COTYLEDONARY AND TRUE LEAVES OF COTTON PLANTS  
PLACED IN PETRI DISHES IN AGAR CONTG. THESE DEFOLIANTS SHOWED THE SAME  
RESPONSE TO THESE DEFOLIANTS AS THE WHOLE PLANTS. EXPLANTS, THUS, MIGHT  
BE USED FOR PRELIMINARY TESTING OF NEW COMPS. FOR DEFOLIATION OF  
COTTON. FACILITY: VSES. NAUCH. ISSLED. INST. KHIM. SREDSTV  
ZASHCH. RAST., MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 621.373.8

GRUZINSKIY, V. V. and STRATSKEVICH, L. K.

"Effect of a Pulsed Longitudinal Magnetic Field on the Generated Power of an He-Ne Laser at  $\lambda_{\text{gen}} = 1.15 \mu$ "

Minsk, Zhurnal prikladnoy spektroskopii, vol 16, No 6, 1972, pp 978-984

Abstract: This article is the continuation of an earlier paper by the same authors in the same journal (14, 1971, p 804) in which they considered the effect of a constant longitudinal magnetic field on the generated power of an He-Ne laser with an isotropically and nonisotropically polarized resonator over a wide range of pressures. The present paper considers the effect of a pulsed magnetic field under the same circumstances and with the same equipment. It is explained that the use of pulsed magnetic fields makes it possible to attain large values of magnetic field intensity without varying the construction of the solenoid. In the experiments described by the present paper, the isotropism of the laser was provided by setting the windows of the discharge tube at small angles to the resonator axis. The pulsed field was generated by a solenoid into which a battery of capacitors of 550  $\mu\text{F}$  discharged. An FEU-22 was used to record the radiation, its signal

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UDC: 621.373.8

GRUZINSKIY, V. V., et al, Zhurnal prikladnoy spektroskopii, No 6, 1972, pp 978-984

being applied to an SI-19 oscillograph. As far as the authors know, the effect of a pulsed magnetic field on an He-Ne laser has never before been investigated. They thank N. A. Borisevich, Academician of the Belorussian Academy of Sciences, for his comments.

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UDC 535.89

BORISEVICH, N. A., BOLOT'KO, L. M., GRUZINSKIY, V. V., TOLKACHEV, V. A.

"Generation of Coumarin Solutions Under the Excitation of a Flash Bulb"

Minsk, Zhurnal Prikladnoy Spektroskopii, Vol 14, No 1, Jan 71, pp 148-150

Abstract: Nine coumarin derivatives were used to obtain generation and tuning of the generation frequency. The concentration of solutions was 0.1 g/l. A specially designed quartz flash bulb with an evacuated air space ( $\sim 60$  mm) was used. A capacitor bank provided a rise time of the light pulse of the lamp of  $\sim 0.4$   $\mu$ sec. The position of the maximum and the width of the generation bands are compared for pumping by the flash bulb and pumping by the second harmonic of a ruby laser. The generation bands under both forms of pumping are wide when a nonselective resonator is used. Due to the slight overlapping of the fluorescence and absorption spectra, the generation bands correspond to the maxima of the fluorescence bands and they are not shifted or only slightly shifted with a change in the concentration of solution. Generation of coumarin derivatives was possible in several solutions. With flash bulb pumping the energy of the radiation generated for 7-sulfomethyl-amino-4-methylcoumarin decreases in the solvents water, ethyl alcohol, and

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BORISEVICH, N. A., et al., Zhurnal Prikladnoy Spektroskopii, Vol 14, No 1, Jan 71, pp 148-150

dimethylformamide. Generation frequency tuning was carried out for a solution of 7-amino-4-methylcoumarin in ethanol, which had a generation band of the shortest wavelength of those known in coumarins. The most intensive part of the generation band was located in the range 438-446 nm. Smooth frequency tuning with simultaneous narrowing of the generation band was accomplished in a wider region, 427-453 nm. Solutions of mixtures of coumarins are suggested to obtain laser radiation in the widest possible spectral region.

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UDC 535.89

BORISEVICH, N. A., GRUZINSKIY, V. V., PALTARAK, N. M., SHAGOSHCHENKO, L. P.,  
SUCHKOV, V. A.

"Generation and Tuning of the Radiation Bands of a Laser Based on Solutions of  
Certain Organic Compounds"

Minsk, Zhurnal Prikladnoy Spektroskopii, Vol 14, No 1, Jan 71, pp 41-44

Abstract: The generation of solutions of oxazole and oxadiazole solutions that differ in the type and position of substitutes and have one or two oxazole rings was studied. Generation of tetraphenylbutadiene and a solution of a coumarin mixture was also obtained. Compounds of these classes are activators of organic scintillators. They were effective active media for liquid lasers in the ultraviolet and blue regions of the spectrum. A table is given showing the name of the substances, the position and width of the strongest part of the generation bands, and the concentration of the solutions for which generation was obtained. Duration of fluorescence is given for the smallest concentrations ( $10^{-3}$  g/l) for which the monomer molecules fluoresce. The generation bands were tuned with a diffraction grating (1200 lines/mm) which concentrated 70% of the reflected light. The second mirror

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BORISEVICH, N. A., et al., *Zhurnal Prikladnoy Spektroskopii*, Vol 14, No 1, Jan 71, pp 41-44

of the resonator was a wide-band mirror. The use of a grid made it possible to narrow considerably and frequency tune the generation bands. For tetraphenylbutadiene with a generation band width of 16 nm, the range of smooth tuning of the generation frequency was 70 nm (480-550 nm). Of greatest interest was the tuning of generation bands of solutions of oxazole and oxadiazole derivatives, since their position was little dependent on experimental conditions in operating with a nonselective resonator.

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GRUZINSKIY, V.V., and STRATSKEVICH, L. K.

"Effect of a Longitudinal Magnetic Field on the Oscillating Power of an He-Ne Laser"

Minsk, Zhurnal Prikladnoy Spektroskopii, May 1971, pp 804-808

Abstract: The effect of an external longitudinal magnetic field on the oscillating power  $W(H)$  at wavelengths of 0.63 and 1.15  $\mu$  of an isotropic and anisotropic He-Ne laser was investigated. The studies were carried out for a broad range of pressures of the mixture and discharge currents. The isotropy of the laser was ensured by placing the windows of the discharge tube at specified angles when, owing to interference, the beams passed without loss to reflection. Anisotropy was obtained by the insertion of a plate in the resonator at the Brewster angle. Comparison of  $W(H)$  for both cases showed that the specific behavior of the function  $W(H)$  for an anisotropic laser is caused by polarization of the radiation. For an isotropic laser in an optimal mode of operation  $W$  was found to be independent of  $H$  up to 600 oe. A decrease in the oscillation threshold and an increase of  $W$  with  $H$  was obtained for various modes of constant current and high-frequency discharge. It was suggested that the onset of oscillation by the

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GRUZINSKIY, V. V., STRATSKEVICH, L. K., Zhurnal Prikladnoy Spektroskopii,  
May 1971, pp 804-808

application of a magnetic field to a discharge plasma be used to obtain a  
pulsed mode of oscillation and modulation of the generated radiation.

The article includes 4 figures. There are 12 references.

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UDC 535.89

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BORISEVICH, N. A., GRUZINSKIY, V. V., KUTSINA, L. M., PALTARAK, N. M.

"Generation in Solutions of Organic Scintillators"

Minsk, Zhurnal Prikladnoy Spektroskopii (Journal of Applied Spectroscopy),  
Vol 12, No 2, Feb 1970, pp 328-330

Abstract: Derivatives of oxazole and oxadiazole are effective organic scintillators and have high fluorescence yields, little sensitivity to oxygen extinction, and other favorable properties for stimulated emission. Various substances with phenyl, diphenyl, and naphthyl radicals and oxazole and oxadiazole rings were tested in solution with toluol, n-xylol, and ditolylmethane. Excitation was provided by doubling the frequency of a ruby laser.

Contrary to other reports, a correlation is found between solution concentration and the position of the generation line. Line shifts were observed for 2(1'-naphthyl)5-phenyloxazole and 1,4-di-[2-(5-phenyloxazolyl)] benzene when their concentrations were increased; line narrowing was observed no n-dimethylamino-2,5-diphenyloxadiazole with increase in concentration.  
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USSR

BORISEVICH, N. A., et al., Zhurnal Prikladnoy Spektroskopii (Journal of Applied Spectroscopy), Vol 12, No 2, Feb 1970, pp 328-330

In some substances generation occurred at room temperature at several wavelengths, corresponding to vibration maxima of their fluorescence bands. The solutions tested can be operated as pulsed light-pumped lasers having low thresholds and high amplification factors. Such organic lasers can be used to generate emission in the ultraviolet region.

Orig. art. has 1 fig., 1 table, and 5 refs.

2/2



USSR

UDC 535.8

BORISEVICH, N. A., GRUZINSKIY, V. V., KUTSYNA, L. M.

"Lasers of Organic Molecular Solutions in the Near-Ultraviolet Spectral Region"

Minsk, Zhurnal Prikladnoy Spektroskopii, Vol 12, No 6, 1970, pp 1111-1115

Abstract: Experiments are described in the generation of laser radiation using the aryl products of oxazole and oxadiazole. A table is given of the compounds, their structural formulas, their concentrations, and the bandwidth of their radiation as found in the experiments. The conditions were the same as those for earlier experiments conducted along the same lines by the first two authors named above together with various other collaborators, and reported in the same journal (11, 173, 1969; 12, 490, 1970; 12, 490, 1970; 12, 926, 1970). The materials studied in the present paper permitted full coverage by the laser radiations of the 360-400 nanometer range of the spectrum. The authors promise a detailed analysis of the generation characteristics of materials of this type as well as their choice of the most effective media for this work in a future paper.

1/1

1/2 042 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--LASING IN SOLUTIONS OF ORGANIC SCINTILLATORS -U-

AUTHOR--(04)-BORISEVICH, N.A., GRUZINSKIY, V.V., KUTSINA, L.M., PALTAKAK,  
N.M.  
COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. SPEKTROSK. 1970, 12(2), 328-30

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS, CHEMISTRY

TOPIC TAGS--STIMULATED EMISSION, LASER EXCITATION, SCINTILLATOR, SOLUTION  
CONCENTRATION, LUMINESCENCE SPECTRUM, QUANTUM YIELD, CHEMICAL STABILITY,  
BENZENE COMPOUND, AZOLE, ORGANIC OXYGEN COMPOUND, DIPHENYLAMINE, PHENOL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1996/1458

STEP NO--UR/0368/70/012/002/0328/0330

CIRC ACCESSION NO--AP0118447

UNCLASSIFIED

2/2 042

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0118447

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STIMULATED EMISSION OF  
1,4,BIS(5,TOLYL,2,OXAZOLYL)BENZENE (I),  
1,4,BIS(5,PHENYL,2,OXAZOLYL)BENZENE (II),  
2,BIPHENYLYL,5,(1,NAPHTHYL)OXAZOLE (III), 2,(1,NAPHTHYL),5,PHENYLOXAZOLE  
(IV), AND P,DIMETHYLAMINO,2,5,DIPHENYLOXADIAZOLE (V) IN PHME, P,XYLENE,  
OR DITOLYLMETHANE WAS OBSD. IN TWO PHOTON EXCITATION BY A RUBY LASER.  
FLUORESCENCE SPECTRA, EMISSION HALF LIVES, QUANTUM YIELDS, AND  
PHOTOCHEM. STABILITY OF I-V ARE DISCUSSED. SHIFTS OF 0.5 AND 1.3 NM OF  
THE STIMULATED EMISSION MAX. OF II AND IV, RESP. DUE TO CONC. CHANGE  
(2-3 FOLD) WERE OBSD.

UNCLASSIFIED

1/3 020 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--LONG TERM LUMINESCENCE OF VAPORS OF COMPLEX MOLECULES -U-  
AUTHOR--(03)-BORISEVICH, N.A., GRUZINSKIY, V.V., KOTOV, A.A.  
COUNTRY OF INFO--USSR  
SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(3), 490-8  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY, PHYSICS  
TOPIC TAGS--LUMINESCENCE SPECTRUM, ANTHRAQUINONE, BENZENE DERIVATIVE,  
AROMATIC KETONE, PHOSPHORESCENCE, EXCITED STATE  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3006/0939 STEP NO--UR/0048/70/034/003/0490/0498  
CIRC ACCESSION NO--AP0134664  
UNCLASSIFIED

2/3 020

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0134664

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TIME DEPENDENCE OF THE LUMINESCENCE OF ANTHRAQUINONE I, PH SUB2 CO II, 4-PHENYLBENZOPHENONE III, AND BENZANTHRONE IV WAS STUDIED. THE LUMINESCENCE AND ABSORPTION SPECTRA OF THE COMPOS. UNDER STUDY ARE SHOWN, AND AN APPROX. ENERGY LEVEL DIAGRAM BASED ON LITERATURE DATA AND EXPTL. RESULTS IS GIVEN. THE VAPOR LUMINESCENCE OF I AND II AT HIGH CONCNS. CONTAINED 2 COMPONENTS WITH COINCIDING SPECTRA. THE LONG LIVED COMPONENT, REPRESENTED BY ALPHA PHOSPHORESCENCE, WAS PREDOMINANTLY RESPONSIBLE FOR THE OVERALL LUMINESCENCE. THE LUMINESCENCE SPECTRUM WAS INDEPENDENT OF THE FREQUENCY OF EXCITATION. THE CONTRIBUTION OF THE SHORT LIVED COMPONENT TO EMISSION WAS LESS THAN OR EQUAL TO 5PERCENT. THE ABSORPTION AND LUMINESCENCE SPECTRA OF VAPORS OF III WERE CLOSELY RELATED TO THOSE OF II. THE PH RADICAL CAUSED THE PI PI SEXTILE ABSORPTION BAND TO SHIFT TOWARDS LONGER WAVELENGTHS. SIMILARLY TO I AND II, THE LUMINESCENCE SPECTRUM OF III WAS INDEPENDENT OF THE FREQUENCY OF EXCITATION; IT SHOWED, HOWEVER, THE TEMP. DEPENDENCE COMMON IN THE LUMINESCENCE OF VAPORS. THE LUMINESCENCE INTENSITY CHANGED PROPORTIONALLY TO THE INTENSITY OF EXCITATION. A STUDY OF THE DEPENDENCE OF THE QUANTUM YIELD AND DURATION OF THE VAPOR LUMINESCENCE OF I, II, AND III ON TEMP. AND THE FREQUENCY OF EXCITATION ALLOWED ONE TO VERIFY THE THEORETICAL CONCEPTS OF THE LONG TERM VAPOR FLUORESCENCE OF THE COMPOS. UNDER STUDY. THE LUMINESCENCE SPECTRUM OF THE VAPORS OF IV SHOWED 2 BANDS WHEREAS A SINGLE BAND WAS OBSD. IN SOLN.

UNCLASSIFIED

3/3 020

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0134664

ABSTRACT/EXTRACT--THE LONG WAVE BAND IN THE VAPOR LUMINESCENCE REPRESENTED BETA PHOSPHORESCENCE WITH A DURATION OF 7 TIMES 10 PRIME NEGATIVE 4 SEC, AND THE LOWEST EXCITED SINGLET AND TRIPLET STATES OF IV WERE THE P1 P1 SEXTILE STATES. CONTRARY TO I, II, AND III, AN INTENSE LUMINESCENCE OF SOLNS. OF IV AND SEVERAL OF ITS DERIVS. WAS OBSD. AT AMBIENT TEMP.

UNCLASSIFIED

1/2 030 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--KINETICS OF THE REACTION OF METHANE WITH A WATER VAPOR OXYGEN  
MIXTURE ON A NICKEL CATALYST -U-  
AUTHOR-(03)-LEYBUSH, A.G., GRUZINTSEVA, A.N., FADEYEVA, T.V.

COUNTRY OF INFO--USSR

SOURCE--KHIM. PROM. (MOSCOW) 1970, 46(1), 18-24

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--METHANE, NICKEL CATALYST, CATALYTIC OXIDATION, PRESSURE,  
THERMAL EFFECT, PARTICLE SIZE, ACTIVATION ENERGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--3005/0040

STEP NO--UR/0064/70/046/001/0018/0024

CIRC ACCESSION NO--AP0132335

UNCLASSIFIED

2/2 030

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0132335

ABSTRACT/EXTRACT--(U) CP-0- ABSTRACT. IN THE CATALYTIC OXIDN. OF CH SUB4 BY H SUB2 O AND O (1:1.5:0.6 VOL. CH SUB4 -H SUB2 O-O) ON A NI-AL CATALYST (4-6PERCENT NI), THE RATE CONSTS. K OF THE REACTION AT 700DEGREES AND 800DEGREES WAS 95 AND SIMILAR TO 200 L.-(ATM-HR-G) RESP., REGARDLESS OF SUBSTANTIAL VARIATIONS IN THE PARTIAL PRESSURES P OF THE REACTANTS; E.G., PCH SUB4 WAS 0.04-0.21 ATM. AT 900DEGREES, K DECREASED FROM 552 TO 383 L.-(ATM-HR-G) WHEN PCH SUB4 WAS INCREASED FROM 0.025 TO 0.034 ATM. THE ABOVE DATA WERE OBTAINED WITH A CATALYST WITH A PARTICLE SIZE (P.S.) OF 2.5 MM; INCREASING THE P.S. DECREASED K; E.G., WITH A CATALYST WITH A P.S. 15 MM AT 800DEGREES, K WAS SMALLER THAN OR EQUAL TO 25-6 L.-(ATM-HR-G); AT 900DEGREES, K WAS SMALLER THAN 39-51 L.-(ATM-HR-G), DEPENDING ON THE SHAPE OF THE CATALYST. THE APPARENT ENERGY OF ACTIVATION OF THE REACTION ON THE CATALYST WITH P.S. 1.5-2.5 MM WAS 19-9.7 KCAL-MOLE AND THE CONST. A IN THE ARRHENIUS EQUATION WAS 2.5 TIMES 10 PRIME6; THE RESP. VALUES FOR P.S. 10-15 MM WERE 9-11 KCAL-MOLE AND 1.8 TIMES 10 PRIME3, RESP.

UNCLASSIFIED



USSR

UDC 533.6.011

GRUZKOV, L. A., and KOROBKOV, V. A., (Leningrad), Leningrad Mechanical Institute,  
Leningrad Institute of Aviation Instrument Manufacture

"Base Pressure During the Emergence of a Central and a Peripheral Annular Jet  
Into a Coflowing Stream"

Kiev, Prikladnaya Mekhanika, Vol 7, No 9, Sep 71, pp 99-105

Abstract: The Chapman-Korst system, best developed method for determining the base pressure with supersonic streamline flow about projections, has been much better studied than methods of calculating subsonic conditions. In spite of the fact that special investigations have established the presence of longitudinal and transverse pressure gradients in shedding zones, it is assumed in the calculations that the pressure in the entire shedding zone is constant and is equal to the base pressure. In the proposed approximation method of calculation of the base pressure in a complex subsonic flow system, the pressure in the shedding zone is not considered to be constant. For the solution, use is made of equations of conservation of the flow rate and momentum of the stream in the initial section and in the section passing through the centers of the eddy zones formed beyond the base shear. The velocity profiles entering into the equations are found by integration of the expressions for the friction stress  $1/2$

USSR

UDC 621.317.78(088.8)

GRUZLEV, S. G., DUBOVOY, N. D., KARPOV, R. G., OSOKIN, V. I.

"Super-High Frequency Power Meter"

USSR Author's Certificate No 275184, Filed 21 Jun 68, Published 14 Oct 70 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4A276P)

Translation: A super-high frequency power meter containing a self-balancing bolometric bridge with an oscillator in the autobalancing circuit is proposed. A pulse oscillator with constant amplitude and regulatable length, the modulation characteristic of which depends on the peak amplitude of the control pulses was used as the oscillator to improve the measurement accuracy.

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USSR

UDC 537.312.62

GRUZN OV, YU. A., KORNIYENKOVA, T. N., PROKOSHIN, A. F., SUVOROV, V. A.

"Superconducting Compositional Materials"

Sb. tr. TsNII Chern. metallurgii (Collected Works of the Central Scientific Research Institute of ferrous metallurgy), 1971, vyp. 78, pp 118-121 (from RZh-Radiotekhnika, No 6, Jun 72, Abstract No 6D448)

Translation: The superconducting compositional materials have the greatest current carrying capacity by comparison with ordinary superconductors. The application of these materials have permitted a significant increase in the current carrying capacity of the superconductors and an increase in the thermal stabilization of the superconducting system. In this paper a study has been made of the effect of cold deformation, the annealing temperature and the delay time on the critical current density  $J_{cr}$  in magnetic fields to 7.2 millionamps/meter (90 kiloersteds) in superconducting compositional materials of circular cross section with superconducting bands of Nb-Ti alloy.

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GRYADIKH' I.A.

SPRS 59268

6-73

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VI-12. INTERRELATION BETWEEN THE GROWTH CONDITIONS, THE STRUCTURE AND CERTAIN ELECTROPHYSICAL PROPERTIES OF  $\text{Bi}_2\text{S}_3$  SINGLE CRYSTALS

(Article by V. I. Betskan, I. A. GRYADIKH', J. E. Kuznetsov, V. I. Novik, and I. I. Simoniuk, in Proceedings of the 1st International Symposium on Photoconductivity and Related Phenomena, 1972, p. 115)

Single  $\text{Bi}_2\text{S}_3$  crystals were obtained from the gas phase under various temperature conditions. Depending on the manufacturing conditions, differences in their morphology and electrophysical properties are clearly observed in the investigated crystals.

A study was also made of the effect of various impurities ( $\text{Bi}$ ,  $\text{I}$ ,  $\text{Te}$ ) on the growth conditions of the crystals and some of their electrophysical parameters.

The morphology of the crystals was investigated using metallographic and electron microscopes. Among the electrophysical properties of  $\text{Bi}_2\text{S}_3$  crystals studied were the conductivity, the thermally stimulated conductivity, photoconductivity and photoluminescence.

A defined correlation was established between the growth conditions of the crystals and some of their electrophysical properties, which opens the possibility of growing crystals with properties given in advance.

USSR

UDC 621.372.44:621.372.44.01

DOVGOSHEV, N.I., KOTASH, YA.P., GRYADIL', I.A.

"Production Method, Electron Conduction, And Photosensitivity Of  $\text{CdS}_x\text{Se}_{1-x}$  ( $0 \leq x \leq 1$ ) Films"

V sb. Poluprovodn. elektronika (Semiconductor Electronics--Collection Of Works), Uzhgorod, 1971, pp 71-85 (from RZh--Elektronika i yeye primeneniya, No 10, October 1971, Abstract No 10B118)

Translation: In order to obtain thin films of  $\text{CdS}_x\text{Se}_{1-x}$  ( $0 \leq x \leq 1$ ), powders or crystals of CdS and CdSe were used, which were taken in various molar ratios. Amorphous, polycrystalline, and single crystals were used, possessing both non-orienting and orienting action. Thin films of  $\text{CdS}_x\text{Se}_{1-x}$  were obtained by the methods of thermal sputtering in a vacuum, "silk screening," and cathode sputtering. It is shown that films of a different composition prepared on cold substrates are of low resistance ( $\rho = 0.01\text{--}10 \text{ ohm. cm}$ ) and are practically non-photosensitive. The low resistivity is caused by an excess of Cd in the film. With an increase of the temperature of the substrate, the resistivity of the films is increased by several orders of magnitude and they become photosensitive. Heat treatment of these films at  $\sim 100^\circ \text{C}$  and above over a period of 40-100 min leads to an abrupt reduction of their resistance and to a complete loss of

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USSR

DOVGOSHEY, N. I., et al., Poluprovodn. elektronika (Semiconductor Electronics -- Collection of Works), Uzhgorod, 1971, pp 71-85 (from RZh--Elektronika i yeye primeneniye, No 10, October 1971, Abstract No 10E118)

their photosensitivity. The monocrystalline films  $CdS_xSe_{1-x}$  were grown on a fresh spalling of mica at  $250^{\circ}C$  and an average rate of growth of 100 Å/min. It is established that the resistivity of  $CdS_xSe_{1-x}$  films increases with a decrease of their thickness. 41 ref. I.Sh.

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USSR

UDC546.86'22'151.541.67

FIRTSAK, YU. YU., DOVGOSHCHHEY, N. I., GRYADIL', I. A., and CHEPUR, D. V.,  
Uzhgorod State University

"Physical Properties of SbSi Seignette-Electric Films"

Moscow, Izvestiya Akademii Nauk SSSR, Neorganicheskiye Materialy, Vol 10, No 3,  
Mat 74, pp 402-404

Abstract: Experimental results are presented from producing Seignette electric films of SbSi by the method of discrete vaporization and "two temperatures." Films produced under optimum conditions have a resistivity of  $10^8$ - $10^9$  ohm-cm. The ratio of photoflux to obscure flux amounts to  $10^2$  (at a candle power of 40 w). SbSi films possessing excess  $Sb_2S_3$ , i.e., produced when substrate temperatures are above optimum, possess a low resistivity and very little photosensitivity. The activation energy for SbSi films is 0.84 ev as determined from the relationship of photoflux magnitude to temperature. The Seignette-electric phase transition temperature for these films is 25-27° C. Physical properties of SbSi films are given. Three figures, 11 bibliographic references.

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USSR

UDC 537.311.3:546.23'48:546.22'48

GRYADIL', I. A., DOVGOSHEY, N. I.

"Concerning the Effect of Production Methods on the Structure of  $CdS_xSe_{1-x}$ "

V sb. Poluprovodn. elektronika (Semiconductor Electronics -- Collection of Works), Uzhgorod, 1971, pp 86-96 (from RZh--Elektronika i yeye primeneniye, No 10, October 1971, Abstract No 10B116)

Translation: The structure of CdS-CdSe solid solution films (in the entire composition range) is studied by electron diffraction methods (by transmission and by reflection) with deposition on structureless (colloids, carbon, quartz glass) and single crystal (mica, NaCl) substrates, both heated and cold. The morphology of the films is studied by the electron microscopic method of a replica. It is established that depending on the conditions of crystallization, both monophase (cubic type of sphalerite or hexagonal type of wurtzite) and polyphase films are formed, with the face (111) of the cubic phase or (0001) of the hexagonal ordinarily oriented parallel to the substrate. 29 ref. Ye. G.

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USSR

UDC 541.183

6  
GRYAZEV, N. N., ZAKHLEBSKAYA, M. N. and SHEPELEVA, L. P., Saratov Polytechnical Institute, Saratov, Ministry of Higher and Secondary Specialized Education RSFSR

"Planning of Experiments on Adsorption from Three-Component Solutions

Moscow. Zhurnal Fizicheskoy Khimii, Vol 44, No 2, Feb 70, pp 491-494

Abstract: The method of planning experiments was used for the first time for the study and analytical treatment of adsorption from a three-component solution in the instance of adsorption on Inza diatomite of component of the system propionic acid - stearic acid - decalin. The process studied can serve as a model of adsorption processes connected with the purification of lubricants. The concentrations of the two acids were used as independent variables and the magnitudes of adsorption of the acids as optimization parameters. It was established that propionic acid interfered with the adsorption of stearic acid. The conditions under which the experiments were conducted, the planning matrix, and the results obtained are compiled in the form of a table. The equations that were derived made it possible to construct three-dimensional adsorption isotherms on the basis of a much smaller amount of experimental data than would be necessary if the method of statistical planning were not applied.

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1/3 012 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--PLANNING AN EXPERIMENT DURING A STUDY OF ADSORPTION FROM THREE  
COMPONENT SOLUTIONS -U-  
AUTHOR--(03)--RAKHLEVSKAYA, M.N., GRYZEV, N.N., SHEPELEVA, L.P.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. FIZ. KHIM. 1970, 44(2), 491-4  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ADSORPTION, PROPIONIC ACID, STEARIC ACID, CYCLOALKANE  
HYDROCARBON  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--3002/1179 STEP NO--UR/0076/70/044/002/0491/0494  
CIRC ACCESSION NO--AP0123601  
UNCLASSIFIED

2/3 012

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRG ACCESSION NO--AP0128601

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE METHOD OF PLANNING AN EXPT. WAS USED FOR THE STUDY AND ANAL. DESCRIPTION OF THE ADSORPTION OF A 3 COMPONENT SOLN. (PROPIONIC ACID PLUS STEARIC ACID PLUS DECALIN) ON DIATOMITE (S SUBSET EQUALS 40 M PRIME2-G, S PRIME EQUALS 5 M PRIME2-G, D SUBEFF APPROXIMATELY EQUAL TO 225 ANGSTROM AT 40DEGREES. THE CONCNS. OF PROPIONIC AND STEARIC ACIDS, X SUB1 AND X SUB2, RESP., WERE CHOSEN AS THE INDEPENDENT PARAMETERS WHILE VALUES OF ADSORPTION OF PRIONIC ACID IN THE PRESENCE OF STEARIC ACID Y SUB1 AND ADSORPTION OF STEARIC ACID IN THE PRESENCE OF PROPIONIC ACID Y SUB2 SERVED AS OPTIMIZATION PARAMETERS. THE CONDITIONS OF REALIZATION OF EXPTS., THE MATRIX OF THE PLANNING, AND RESULTS ARE TABULATED. FROM THE DATA OBTAINED THE SPACE ADSORPTION ISOTHERMS WERE CONSTRUCTED. THE ADSORPTION DATA CONFIRM THAT THE PRESENCE OF STEARIC ACID (AT X SUB2 SMALLER THAN 45 MILLIMOLES-L.) SHOWS PRACTICALLY NO EFFECT ON THE ADSORPTION OF PROPIONIC ACID FOR THE CASE OF THE DENSE FILLING OF A MONOLAYER. HOWEVER, AT X SUB1 SMALLER THAN 100-159 MILLIMOLES-L. THE ADSORPTION OF PROPIONIC ACID IS LOWER THAN THAT FROM THE BINARY MIXT. THE EQUATION  $Y_{SUB1} = 0.28 + 0.026 S_{SUB1} - 0.004X_{SUB2} - 0.017X_{SUB1} PRIME2 - 0.009X_{SUB2} PRIME2$  CAN BE USED FOR DESCRIPTION OF ADSORPTION OF PROPIONIC ACID IN THE CONC. INTERVAL 5-10 TO 300 MILLIMOLES-L. FOR VALUES OF ADSORPTION OF STEARIC ACID IN THE PRESENCE OF PROPIONIC ACID THE FOLLOWING EQUATION WAS OBTAINED:  $Y_{SUB2} = 0.053 - 0.007X_{SUB1} + 0.019X_{SUB2} + 0.0014X_{SUB1} PRIME2 - 0.0046X_{SUB2} PRIME2 - 0.001X_{SUB1} X_{SUB2}$ .

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UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0128601

ABSTRACT/EXTRACT--BY INTRODUCING PROPIONIC ACID IN THE MIXT. THE VALUE OF  
ABSORPTION OF STEARIC ACID IS CHANGED CONSIDERABLY: THE SUBSTITUTION OF  
MOLS. OF STEARIC ACID WITH MOLS. OF PROPIONIC ACID BEGINS IN THE  
ABSORPTION LAYER. FACILITY: SARATOV. POLITEKH. INST., SARATOV,  
USSR.

UNCLASSIFIED

USSR

UDC 619:616.981.42+616.981.51.05447:656.2/.98

GREASIN, Y. I., Professor, SAL'NIKOV, F. Ye. (Deceased), PANKRAIOV, L. D.,  
ITCHINA, O. F., Candidates of Veterinary Sciences, and ZHILA, A. Ye., Junior  
Scientific Associate Kazakh Scientific Research Veterinary Institute

"Study of a Combined Vaccine Against Brucellosis and Anthrax in Sheep"

Moscow, Veterinariya, No 7, 1970, pp 36-40

Abstract: A combined dry vaccine against brucellosis and anthrax was prepared from standard strains No. 19 and STI-1 of brucella and B. anthracis, respectively. Guinea pigs and sheep were immunized with vaccine containing the two antigens in a ratio corresponding to that which would be used in separate administration of monovaccines against the two diseases. Intensive immunity to infection with virulent strains of Br. melitensis and B. anthracis developed, indicating an absence of mutual interference between the two antigens. Administration of the combined vaccine to sheep produced immunity to anthrax that lasted for more than 2 years and immunity to brucellosis for up to 17 months.

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GRYAZNOV, Boris

JPRS 57710  
780c 72

- 56 -

What kind of future awaits mankind? People are pondering that question in all parts of the world. Our nation, which this year marks the 50th anniversary of the formation of the Soviet Union, looks joyously into the future. The decisions of the 24th Congress of the CPSU determine the successful advancement of our society and plan for new accomplishments on a colossal scale and the confident step of the scientific-technical revolution in our country. And yet bourgeois society is in the vice of contradictions. The completely unprecedented rates of development of science and technology are only aggravating these contradictions and leading to the further suppression and enslavement of human individuality. That is admitted even by many bourgeois thinkers. For example, the Italian philosopher A. Bruno writes that what is most serious is "that increasingly obvious contrast that exists between the power of unlimited technical intelligence penetrating all aspects of our life, and the impotence of the intelligence of the individual, the personal, which, increasingly loses independence of thought and action." British sociologist D. Michael agrees with that statement. He writes, "We speak about the importance of the individual and about the wealth of choice that this world offers him. However, we have surrounded him with pollution, radiation, a vast police system, etc., which, although they were created by man, possibly

SCIENTIST CRITICIZES D. MEADOWS' 'WORLD MODEL'

Article by Boris GRYAZNOV, "The Future of the World, Is the Electronic Oracle Correct?", Moscow, Literaturnaya Gazeta, Russian, 5 November 1972, pp 12-13/

seem to many people to possess scientific value that dominates over us like in work of the past. However, far from everyone in the West, like A. Bruno or D. Micheli, sees the real support for the pervasion of the state of scientific-technical progress -- capitalism. Many are inclined to accuse progress of all the misfortunes. More and more frequently one hears pessimistic prophecies of a "plow" to be. It is alleged that mankind has gone down a dead-end and is heading for a catastrophe. If certain urgent steps are not taken. The most recent of these prophecies was made on the basis of a study on the behavior of a "world model" with the aid of an electric computer. This work was carried out by a planning group at Massachusetts Institute of Technology (United States), headed by Doctor D. Meadows. The basic conclusion to which the planning group came was: assuming the present-day rates of economic and demographic development, the next century will see the exhaustion of natural resources and the mass starvation of people, the pollution of the environment, etc.; in order to avoid this, it is necessary, no later than 1975, to take steps to prevent population growth and the development of the economy on a world scale. Today we are publishing excerpts of the report submitted by the planning group at Massachusetts Institute of Technology, after being prepared by Doctor Dennis Meadows jointly with Donella Meadows, Jorgen Randers, and William Behrens. The conclusions in that report are argued by Candidate of Philosophical Sciences Boris Gryaznov, head of the Sector for Logic of Development of Science, Institute of the History of Natural Sciences and Technology, Academy of Sciences USSR.

There are various kinds of forecasts. One might attempt to forecast the development of the automobile industry or the machine-tool-building industry, or the development of means of communication or power engineering. Each of these "objects" is relatively simple, that is, each of them is described by a limited number of essential parameters. Therefore, the forecast itself may also turn out to be more or less reliable. It is not by chance that recently a large number of such forecasts have sprung up, especially in the West.



USSR

UDC 620.178.5

GRYAZNOV, B. A., GORODNETSKIY, S. S., and TUGARINOV, A. S., Institute of Strength Problems, Ukrainian SSR Academy of Sciences (Kiev)

"Investigation of the Damageability of the Turbine Blades of Gas-Turbine Engines After Exhaustive Operational Wear"

Kiev, Problemy Prochnosti, No 11, Nov 73, pp 65-67

Abstract: Results are presented of the investigation of new working blades of a new turbine engine and of blades with various degrees of wear under standard operating conditions. A comparative evaluation was made of the injurious action of operational wear by means of determination of the "secondary" fatigue curves of blades that had been in operation prior to testing, and an investigation was made of changes of the physicomaterial properties of the material of blades made from alloy EI437B. An experimental evaluation of the fatigue characteristics of blades with operational wear of up to 4000 hours was conducted; regression equations of the fatigue curves were computed, and a limit surface of the carrying capacity of blades with operational wear was plotted. It was established that under standard operating conditions the finite fatigue limit of the blades on the basis of  $10^7$  cycles decreases over the investigated period on the average by 13-15%, and that the parameters of the fatigue model  $\sigma^m N = C$  undergo change. 4 figures. 2 tables. 5 references.

1/1

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USSR

UDC 620.178.5

TROSHCHENKO, V. T., GRYAZNOV, B. A., GORODETSKIY, S. S., ROYTMAN, A. B.,  
NALIMOV, Yu. S., (Kiev)

"Study of the Influence of Technological Factors on the Endurance of Gas  
Turbine Blades"

Kiev, Problemy Prochnosti, No 8, 1972, pp 8-12.

Abstract: This work presents an analysis of the influence of certain technological factors on the endurance of the third stage of a gas turbine engine. The blade manufactured by mechanical working of stamped blanks of EI437B vacuum-arc remelted alloy. The deviations in the technology of manufacture of the working turbine blades (scratches, burns, and additional operation called "lustering") have no significant influence on the fatigue strength of blades with a test base of  $10^7$  cycles at 20 and 570°C. The range of change of fatigue limits in the test blades in comparison with a control group of blades at 20°C was from -0.5% to +7%, at 570°C -- from 0 to +5%. The technological deviations studied do increase the scattering of blade test results in the area of limited durability.

1/1

USSR

UDC 621.317.32.015.33

GOYKHEMAN, A. YA., GRYAZNOV, M. I., and KALININ, V. N., Scientific Research Institute of Nuclear Physics

"Measurement of Ultrashort Electric Pulse Parameters by the Integral Method Using the Franz-Keldysh Effect"

Moscow, Vestnik Moskovskogo Universiteta, Seriya III -- Fizika, Astronomiya, Vol 12, No 2, Mar-Apr 71, pp 232-234

Abstract: In an earlier article the authors suggested the idea of recording and determining parameters of ultrashort electric pulses by their "pile-up" on a light carrier by means of an electrooptic modulator based on the Franz-Keldysh effect. It was indicated that one of the ways of obtaining information on ultrashort pulse parameters is the integral method, developed in radio engineering for the measurement of pulse parameters. The present article considers the principle of the measurement of ultrashort pulse parameters. The suggested method makes it possible to determine the amplitude of single square ultrashort pulses and then, using the linear dependence of the output signal

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USSR

GOYKHMAN, A. YA., et al., Vestnik Moskovskogo Universiteta, Seriya III --  
Fizika, Astronomiya, Vol 12, No 2, Mar-Apr 71, pp 232-234

of the photoreceiver on the duration of the pulse being investigated, to determine the duration of the latter. The use of a greater number of modulators makes it possible to obtain more detailed information on the shape of investigated ultrashort pulses of arbitrary shape.

2/2

USSR

UDC [537.226+537.311.33]:[537+535]

GRYAZNOV, O. S.

"Tables for Calculation of Kinetic Coefficients in Semiconductors"

Tablitsy dlya rascheta kineticheskikh koeffitsiyentov v poluprovodnikakh  
(cf. English above), Leningrad, "Nauka," 1971, 63 pp, ill, 30 k. (from RZh-Fizika, No 10, Oct 71, Abstract No 10YE591K from summary)

Translation: The book contains tables of nodal points and weighting factors of quadrature formulas of the Gauss type which make it possible to find, with sufficient accuracy, the values of various kinetic coefficients such as, for example, electrical and thermal conductivity, thermoelectromotive force, etc. for a varying degree of electronic gas degeneracy and for an arbitrary variance law and energy-dependence of relaxation time. Examples are given of the use of the tables not only to calculate kinetic coefficients but also to solve the Boltzmann kinetic equation in inelastic scattering mechanisms; six-figure tables of nodes and weighting factors are given for various values of chemical potential with a small step, which facilitates interpolation. The book is intended for a wide audience of engineers and physicists engaged in semiconductor research.

1/1

Acc. Nr: **10049897** Abstracting Service:  
— CHEMICAL ABST. 5-70**GRYAZNOV V.M.**

Ref. Code:

**U R 0 0 2 0**

104339v Coupling of reactions resulting from hydrogen transfer through the catalyst. Gryaznov, V. M.; Smirnov, V. S.; Ivanova, L. K.; Mishchenko, A. P. (Univ. Druzhby Nar. im. Lunumby, Moscow, USSR). *Dokl. Akad. Nauk SSSR* 1970, 190(1), 144-7 [Phys Chem] (Russ). A dehydrogenation reaction was performed in a Pd tube (Pd-membrane catalyst) and the evolved H, transported through Pd to the outside, became involved in a hydrogenation reaction with unsatd. hydrocarbons. Dehydrogenation of butene to butadiene took place at 380° on a Pd-membrane catalyst at a rate 2000 times higher than with the reaction performed on the industrial K-16 catalyst at 600°. Simultaneously with the above dehydrogenation, the transported H was consumed by a hydrogenation of C<sub>6</sub>H<sub>6</sub> and, as the result, the dehydrogenation did not give *trans*-2-butene as a byproduct. HMJR -

1/1

REEL/FRA  
198018297  
13

USSR

UDC: 533.6.001.5

VILENSKIY, F. A., VOLKONSKAYA, T. G., GRYAZNOV, V. P., FIRUMOV, U. G.,  
Moscow

"Investigation of Nonstandard Flow Conditions in an Axisymmetric Annular  
Plug Nozzle"

Moscow, Izv. AN SSSR: Mekhanika Zhidkosti i Gaza, No 4, Jul/Aug 72, pp  
94-101

Abstract: The paper presents the results of calculations and experimental study of nonstandard flow conditions in an annular plug nozzle when the external pressure  $p_{ex}$  exceeds the pressure  $p^0$  determined in the one-dimensional approximation from the ratio of the area of the output section of the nozzle to the area of the critical cross section. The method of characteristics is used to calculate the gas flow in the annular region enclosed between the free boundary and the edge of the plug under nonstandard conditions when  $p_{ex} > p^0$ . An experimental study is made of the flow, during which the static pressure was measured on the wall of the nozzle, and shadow photography was used to visualize the flow. The results of the experimental and theoretical study are given for a ring nozzle with  $M^0 = 3.71$  and an ideal gas with constant adiabatic exponent 1.4.

1/1

- 11 -

USSR

UDC: 621.373:530.145.6

LEBEDEV, O. L., GRYAZNOV, Yu. M., CHASTOV, A. A.

"A Liquid Shutter"

USSR Author's Certificate No 237293, filed 13 May 67, published 12 May 70  
(from RZh-Radiotekhnika, No 2, Feb 71, Abstract No 2D272 P)

Translation: This Author's Certificate introduces a liquid shutter for modulating laser emission. To improve photochemical and thermal stability, the shutter utilizes a bromidized phthalocyanine such as copper phthalocyanine dissolved in aluminum bromide in the presence of an acid halide such as acetyl chloride.

1/1

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1/2 040 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--USE OF NONLINEAR ABSORPTION TO CORRECT THE RADIATION WAVEFRONT OF  
SOLID STATE LASERS -U-  
AUTHOR--(05)--SUSKIN, M.S., POGORETSKIY, P.P., GRYAZNOV, YU.M., LEBEDEV,  
G.L., CHASTOV, A.A.  
COUNTRY OF INFO--USSR

6

SOURCE--ZHURNAL PRIKLADNOI SPEKTROSKOPII, VOL. 12, APR. 1970, P. 740-742

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--RUBY LASER, LASER RADIATION FILTER, NONLINEAR EFFECT, LASER  
BEAM DIVERGENCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--2000/1317

STEP NO--UR/0368/70/012/000/0740/0742

CIRC ACCESSION NO--AP0124968

UNCLASSIFIED

2/2 040

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0124968

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF THE USE OF A LOCAL  
NEGATIVE FEEDBACK TO IMPROVE THE SPATIAL AND TEMPORAL CHARACTERISTICS OF  
SOLID STATE LASERS WITH OPTICALLY IMPERFECT ACTIVE MEDIA. THE  
POSSIBILITY OF IMPROVING THE CHARACTERISTICS OF A RUBY LASER WITH A  
BLEACHABLE DYE FILTER IS SHOWN EXPERIMENTALLY. A PRACTICALLY CONTINUOUS  
REGIME WITH A SIMULTANEOUS DECREASE IN BEAM DIVERGENCE FROM 50 TO 10 MIN  
TO 2 TO 3 MIN IS OBTAINED.

UNCLASSIFIED

1/2 041  
TITLE--LIQUID SHUTTER -U-

UNCLASSIFIED

PROCESSING DATE--27NOV70

AUTHOR-(03)-LEBEDEV, D.L., ORYAZNOV, YU.M., CHASTOV, A.A.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 237,293  
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZITSY, TOVARNYE ZNAKI 1970,  
DATE PUBLISHED--06JAN70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--LASER RADIATION, PHOTOCHEMISTRY, THERMAL STABILITY, PATENT,  
PHYSICS LABORATORY INSTRUMENT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3002/0091

STEP NO--UR/0492/70/000/000/0000/0000

CIRC ACCESSION NO--AA0127718

UNCLASSIFIED

2/2 041

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AA0127718

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TO INCREASE THE PHOTOCHEM. AND  
THERMAL STABILITY OF A LIQ. SHUTTER FOR MODULATING LASER RADIATION,  
BROMINATED CU PHTHALOCYANINE DISSOLVED IN ALBR SUB3 AND IN AN ACID  
HALIDE, SUCH AS ACETYL CHLORIDE, WAS USED IN THE SEAL.

UNCLASSIFIED

1/2 045 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--STRUCTURE OF EUROPIUM TETRAKIS BENZOYLACETONATE USABLE FOR  
OBTAINING A LASER EFFECT -U-  
AUTHOR--(05)-ARISTOV, A.V., HASLYUKOV, YU.S., GRYAZNOVA, M.I., DOMRACHEV,  
G.A., ASLANOV, L.A.  
COUNTRY OF INFO--USSR

SOURCE--TEKH. EKSP. KHIM. 1970, 6(1), 61-6

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--EUROPIUM COMPOUND, LUMINESCENCE SPECTRUM, X RAY STUDY, COMPLEX  
COMPOUND, LASER EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--3002/1176

STEP NO--UK/0379/70/006/001/0061/0065

CIRC ACCESSION NO--AP0128598

UNCLASSIFIED

2/2 045

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0128598

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ET SUB2 NH SUB2 (EU(BZAC) SUB4) AND C SUB5 H SUB11 NH(EU(BZAC) SUB4), WHERE HBZAC EQUALS BENZOYLACETONE AND C SUB5 H SUB11 NH PRIME POSITIVE EQUALS PIPERIDINIUM, WERE SYNTHESIZED BY THE METHOD OF BHAUMIK (1964) AND THEIR LUMINESCENCE SPECTRA WERE TAKEN AT 77DEGREESK. STRUCTURES OF THE COMPS. AND OF THE (EU(BZAC) SUB4) PRIME NEGATIVE ION WERE DETD. BY X RAY STRUCTURAL ANAL. SPLITTING OF THE GROUND STATE LEVEL FOR THE EU ION CORRESPONDS TO A C SUB2 SYMMETRY BUT IT MAY ALSO BE DUE TO THE C SUB4 SYMMETRY OF THE EUO SUB8 GROUP. BOTH COMPLEXES GIVE A STABLE LASER EFFECT AT 613 NM WHICH CORRESPONDS TO A TRANSFER FROM THE PRIME5 D SUBO LEVEL TO THE X OR Y COMPONENT OF THE PRIME7 F SUB2 LEVEL SPLIT BY THE CRYST. FIELD OF C SUB2 OR C SUB4 SYMMETRY. FACILITY: MOSK. GUSUNIV., MOSCOW, USSR.

USSR

UDC: 8.74

CHERENIN, V. P., GRYAZNOVA, T. P.

"A Collective Information-Diagnostic Program"

V sb. Issled. operatsiy (modeli, sistemy, resheniya), vyp. 1  
(Operations Research [Models, Systems, Solutions], No 1),  
Moscow, Computing Center of the Academy of Sciences of the  
USSR, 1970, pp 113-127 (from RZh-Kibernetika, No 8, Aug 72,  
Abstract No 8V678)

Translation: The authors analyze the failures of known methods of determining the probability  $p(d_i/s_j)$  of a given illness  $d_i$  in the presence of a given set of symptoms  $s_j = \{s_{j1}, s_{j2}, \dots, s_{jk}\}$  used in automatic diagnosis of illnesses. A method is proposed for determining probabilities  $p(d_i/s_j)$  by searching in a data file of histories of illnesses for all those histories which include the symptom set  $s_j$  in the request, and calculating the frequencies of individual illnesses for the selected histories. Each history of illness included in the data file is initially written in coded form on a special

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USSR

CHERENIN, V. P., GRYAZNOVA, T. P., Issled. operatsiy (modeli, sistemy, resheniya), vyp. 1, Moscow, Computing Center of the Academy of Sciences of the USSR, 1970, pp 113-127

blank. The ordinal four-place decimal number of the history of the illness is recorded in the first line. Thirteen octal values of the symptoms are recorded in each of the next seven lines. The two last digits of the octal numbers from the last line are set aside for the octal code number of the disease itself. The information concerning each request is recorded on three punchcards. All values of  $k$  symptoms of the symptom set  $s_j$  observed in the patient are recorded in the first seven lines of the first punchcard. Zeros are set down in place of the remaining -- undetermined -- symptoms. The next four lines are left empty. Scales for distinguishing the given values of symptoms from undetermined values are recorded in the first seven lines of the second punchcard. The first line of the third punchcard contains a four-digit decimal number for the request, and the last three lines contain octal six-digit values of permissible errors. A detailed flowchart is presented of a program for the "Ural-4"

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USSR

CHERENIN, V. P., GRYAZNOVA, T. P., Issled. operatsiy (modeli, sistemy, resheniya), vyp. 1, Moscow, Computing Center of the Academy of Sciences of the USSR, 1970, pp 113-127

computer. It is noted that the total number of different illnesses may reach 63; however, the given program (due to the limited memory of the "Ural-4" computer) is designed for work with only 15 illnesses, although provision is made for rapid conversion to 25 illnesses. The results of experimental calculations are discussed. Bibliography of ten titles.

3/3

1/2 014 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--KINETICS OF ETHYLENE HYDROGENATION ON COBALT X ZEOLITE -U-

AUTHOR--(02)--GRYAZNOVA, Z.V., KOLODIYEVA, YE.V.

CCOUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(6), 1383-6

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--COBALT COMPOUND, ZEOLITE, HYDROGENATION, BENZENE, ETHYLENE,  
REACTION KINETICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRA--2000/1088

STEP NO--UR/0020/70/190/006/1383/1385

CIRC ACCESSION NO--AT0124745

UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0124745

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HYDROGENATION OF C SUB6 H SUB6 AS WELL AS C SUB2 H SUB4 WAS SHOWN TO TAKE PLACE ON THE METALLIC ACTIVE CENTERS OF THE TITLE CATALYSTS. ALTHOUGH X TYPE ZEOLITES HAVE RATHER OPEN STRUCTURE, THE ACTIVE CENTERS FOR THESE HYDROCARBONS MAY BE ACCESSIBLE TO DIFFERENT DEGREES, DEPENDING ON THE CRYSTALLOGRAPHIC LOCATION OF THE IGN THAT UNDERGOES REDN. HYDROGENATION OF C SUB6 H SUB6 IN ADDN. IS A PROCESS WITH A GREATER CAPACITY FOR ENERGY UPTAKE THAN THE PROCESS OF HYDROGENATION OF C SUB2 H SUB4. KINETIC CURVES WERE SHOWN FOR THE ABOVE REACTIONS AT TEMPS. FROM 30DEGREES TO 320DEGREES USING A FEED OF H AND HYDROCARBON IN PASSAGE OVER A NACOX SUB6 ZEOLITE CATALYST THAT HAD BEEN SUBJECTED TO EXCHANGE OF NA IONS FOR CO TO THE EXTENT OF 61.9PERCENT. FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 612.014.2+616.-92.3

PRAKAPCHUK, A. Ya (Deceased), GRYNGAUZ, N. Ya., YROMENKA, S. A.,  
and KORSUN, U. F.

"The State of Histoemetic Barriers in Guinea Pigs After the  
Action of Ionizing Radiation on the Organism"

Minsk, Izvestiya Akademii Nauk BSSR, Seriya Biologicheskikh  
Nauk, No 1, 1971, pp 79-81

Abstract: Cutaneous permeability with respect to radioactive isotopes of phosphorus, sulfur, and arsenic was studied under certain physiological and pathological conditions of the organism. Sixty-eight guinea pigs were used. Prior to the beginning of the experiments the animals were subjected to x-ray irradiation with total doses of 500 and 900 rad. Twenty-four to 48 hours later, the isotopes (in doses of 1.8 millicurie in ointment bases) were applied to shaved skin. It was established that the skin is permeable to these isotopes, the degree of permeability depending on the activity of the isotope, the duration of skin exposure to the action of the isotope, and the type of the ointment base  
1/2

USSR

PRAKAPCHUK, A. Ya (Deceased), GRYNGAUZ, M. Ya., YROMENKA, S. A.  
and KORSUN, U. F., Izvestiya Akademii Nauk BSSR, Seriya  
Biologicheskikh Nauk, No 1, 1971, pp 79-81

used. The largest accumulation of isotopes in the brain, in  
diminishing order of radioactivity, were found in the hypophysis,  
gray matter, cerebellum, medulla oblongata, spinal cord, and  
white matter.

2/2

USSR

UDC 591.481:611.81.591.483:611.83

GRYSHAN, K. I.

"Comparative Cytochemistry of Sulfhydryl Groups and Cytometric Characteristics of the Nerve Cells of Paravertebral Sympathetic Ganglia in Some Vertebrates Under Normal and Experimental Conditions"

Minsk, Izvestiya Akademii Nauk BSSR, Seriya Biologicheskikh Nauk, No 1, 1971, pp 56-62

Abstract: Ganglia of various fish and frog varieties and the superior cervical sympathetic ganglia of rodents, guinea pigs, cats, dogs, and man were studied. The investigations established that the architectonics of protein substances containing sulfhydryl groups in the neurons of poikilo- and homoiothermic animals differ considerably. Section of preganglionic fibers deprives the sympathetic nerve cells of their protein sulfhydryl groups, causing considerable structural changes, which in turn lead to a decline in their functional potentials. Apparently, the chemical structural changes which develop following section

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USSR

GRYSHAN, K. I., Izvestiya Akademii Nauk BSSR, Seriya Biologicheskikh Nau, No 1, 1971, pp 56-62

of the interganglia ramus may be regarded as the process of nerve cell adaptation to new and unusual conditions.

2/2

7

UDC 612.84612.766.1

USSR

NAVAKHATSIYAN, O. O., KURDIYEV, Yu. I., LYSYNA, G. G., SEMENOV, V. P.,  
GRYSHIKO, F. I., DENKACH, V. S., KAPSHUK, O. P., KRYZENKO, A. Ye., KLEBANOV, A. M.,  
KOVAL'OVA, G. I., RATUSHNA, A. M., TOMASHENKO, L. I., NAGORNIA, A. M.,  
and MAYDYKOV, Yu. L., Kiev Institute of the Work Hygiene and Occupational  
Diseases, Kiev

"Nervous Emotional Stresses as a Problem of Modern Work Physiology"

Kiev, Fiziologichnyy Zhurnal, Vol 18, No 4, Jul/Aug 72, pp 535-546

Abstract: The introduction of machines and automatic control instrumentation into production lines at plants and factories and at many other institutions requires of workers rapid coordination of actions combined with mental activity. The volume of information input which requires a combination of physical and mental ability has been increasing tremendously for the last decade. This has produced nervous and emotional stresses and disturbances in the normal functions of many human organs. Analysis of many workers from various branches of industry as well as people occupied with mental work has shown that modern technology imposes heavy stresses on an individual which are accompanied by abnormal function of the adrenal glands, and hypothalamus, and the hypophyseal and sympathetic-adrenal systems. Measurements have shown that corticosteroid blood and urine

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USSR

NAVAKATYKYAN, O. O., et al., Fiziologichnyy Zhurnal, Vol 18, No 4, Jul/Aug 72, pp 535-546

levels exceed the norm by as much as 42-57% in people under heavy stress. Emotional stress with distortion in the function of many systems were more often encountered among the young (17-18 year olds). These malfunctions included the secretion of adrenalin and noradrenalin, and disturbances in hemodynamics. Shifts in physiological functions among different occupational groups under identical stresses occur at different times and are closely related to age. They were more pronounced among older people (31-40 years old). The cardiovascular system occupies a prominent place in labor physiology, and there are many methods and approaches to study it. Some literature methods and those of the authors are described, including instrumentation. Mental work which is accompanied by nervous-emotional stresses influences profoundly the cardiovascular system within a wide range of deviations, including pathological functional disturbances and hypertension. The same is true for other occupations as well. The authors recommend the rational use of working hours and rest periods to avoid overstresses.

2/2

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1/2 017 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--EFFECT OF SOME PHARMACOLOGICAL SUBSTANCES AND PHYSICAL FACTORS ON  
THE BILE EXCRETORY FUNCTION IN HEALTHY INDIVIDUALS AND IN PATIENTS WITH  
AUTHOR--(04)-BELOUSOV, A.S., TASHEV, T., GRYUNCHAROV, V., ZHIGALOVA, M.F.

COUNTRY OF INFO--USSR

SOURCE--TERAPEVTICHESKIY ARKHIV, 1970, VOL 42, NR 4, PP 54-61

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--BILE, SECRETION, ATROPINE, DUODENUM, DRUG EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAHE--1996/0439

STEP NO--UR/0504/70/042/004/0054/0061

CIRC ACCESSION NO--AP0117675

UNCLASSIFIED

2/2 017

UNCLASSIFIED

PROCESSING DATE--30JCT70

CIRC ACCESSION NO--AP0117675

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS SUGGEST A NEW METHOD OF STUDYING BILE SECRETION AND BILE EXCRETION IN HUMAN BEINGS. ITS ADVANTAGES AS COMPARED TO OTHER METHODS ARE SHOWN. MATERIAL CONCERNING THE EFFECT OF PHARMACOLOGICAL SUBSTANCES (ATROPINE, MYCERIN) ON BILE EXCRETION IN TO THE DUODENAL REGION IS GIVEN. THE AUTHORS DRAW THE READER'S ATTENTION TO AN UNTOWARD EFFECT OF ATROPINE ON THE BILE SECRETORY FUNCTION IN THE TREATMENT OF PATIENTS WITH PEPTIC ULCER. THEREFORE, IT IS RECOMMENDED THAT COLAGOGUE MEANS (MEDICINAL, DYGESTIVE AND PHYSIOTHERAPEUTIC) SHOULD BE INCLUDED INTO THE COURSE OF TREATMENT WITH ATROPINE AND ATROPINE LIKE AGENTS. FACILITY: KAFEDRA RASTROENTEROLOGII I DIYETOTERAPII TSENTRAL'NOGO INSTITUTA USOVERSHENSTVOVANIYA VRACHEY, MOSCOW. FACILITY: KAFEDRA RASTROENTEROLOGII ISUL, SOFIA.

UNCLASSIFIED

USSR

UDC: 632.384.66

BORISOV, D. G., GRYZLOV, A. I., PRUDNIKOV, I. A., EMIROV, E. Kh.

"A Method of Modulating the Energy of a Flow of Charged Particles"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 10, Apr 71, Author's Certificate No 270918, Division II, filed 4 Dec 68, published 11 Mar 71, p 238

Translation: This Author's Certificate introduces a method of modulating the energy of a flow of charged particles by sending particles grouped into bunches and accelerated to relativistic energy through an iris traveling-wave waveguide. As a distinguishing feature of the patent, the method is designed to produce a line spectrum in short time intervals. Electromagnetic oscillations are excited in the iris waveguide with a period which does not coincide with the prf of the relativistic bunches of accelerated charged particles.

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Controls

USSR

UDC 621.396.61:621.311.6(088.8)

GRYZLOV, A. I., RAYEVSKIY, A. YE., SOLOV'YEV, YU. V.

"Device for Fixing the Bias"

USSR Author's Certificate No 253171, Filed 5 Sep 67, Published 24 Feb 70  
(from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9D338E)

Translation: This author's certificate introduces a device for fixing the bias in a grid circuit of a powerful modulator tube included in series with the source of control pulses to the grid circuit of the modulator tube. In order to decrease the rectifier power, a circuit of series connected thyratrons and a capacitor is connected in parallel to the filter capacitor. A circuit made up of another series connected thyatron and resistor is connected in parallel, in turn, to the thyatron and the capacitor, and the grids of the indicated thyratrons are connected to the source of the synchronous pulses via a delay line.

1/1

Pulse Technique

USSR

UDC 621.375.53(088.8)

ZVONTSOV, A. G., GRYZLOV, A. I., BELOV, YU. V., SOLOV'YEV, YU. V.

"Pulse Modulator"

USSR Author's Certificate No 252394, Filed 27 Sep 67, Published 12 Feb 70  
(from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9D246P)

Translation: This author's certificate introduces a pulse modulator containing a high-voltage direct-current source with a charge choke and a separating diode, a hollow commutator made of two thyratrons with autonomous ignition generators, a storage element in the form of an artificial line and a load. In order to accelerate deionization of the thyatron and eliminate repeated breakdown by the return voltage, it is equipped with an auxiliary diode which is connected to the discharge circuit of the thyatron between its anode and a common terminal for connecting the separating diode with the artificial line.

1/1

USSR

UDC 621.373.431(083.8)

GRYZLOV, A. I., SOLOV'YEV, YU. V., RAYEVSKIY, A. YE. BELOV, YU. V.

"High-Power Oscillator"

USSR Author's Certificate No 275114, Filed 6 Sep 68, Published 15 Oct 70 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4G207P)

Translation: A high-power oscillator is proposed. It contains a power supply, a resonance charge choke, a shaping line, a synchronizer, a delay line, a commuting thyatron and a pulse transformer. In order to reduce the cutoff duration and improve the deionization conditions, a shunting thyatron is included in parallel to the primary coil of the transformer. The control electrode of the thyatron is connected to the output of the delay line.

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UDC 547.269.351.1/.5=547.412.21/.25

USSR

GRYZLOVA, G. K., and STEPANOV, B. I., Moscow Chemical-Technological Institute  
Imeni D. I. Mendeleev

"Reaction of Hexachlorocyclotriphosphazatriene with Aromatic Sulfoacids in  
Presence of Dimethylformamide"

Leningrad, Zhurnal Organicheskoy Khimii, Vol 7, No 3, Mar 71, pp 619-621

Abstract: The reaction of aromatic sulfoacids and their salts with hexachlorocyclotriphosphazatriene (HCCPT) in the presence of dimethylformamide to yield corresponding sulfochlorides was studied. It was established that the cation of the sulfoacid salt had no effect on the reaction course. The optimal conditions for the reaction required that the ratio of the aromatic sulfoacid:dimethylformamide:HCCPT be 1:6:1. The sulfochlorides reacted with dimethylformamides forming stable addition products of the Wilsmyer-Haak type, which appeared to be inactive as formulating agents.

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USSR

UDC 661.3:621.791.1

GRZHEMAL'SKIY, L.L., Candidate of Technical Sciences

"Fourth All-Union Scientific and Technical Conference on Soldering"

Moscow, Svarochnoye Proizvodstvo, No 5, May 70, p 60

Abstract: The article discusses the Fourth All-Union Scientific and Technical Conference on Soldering, held in Moscow from 14 to 16 January 1970. Over 100 representatives of industrial enterprises, design and planning organizations, and educational and scientific research establishments from 20 cities, representing the principal industrial and economic regions of the country, participated. Participants presented 45 papers and reports which reflected the contemporary state of the theory and practical application of soldering. The conference adopted a resolution calling for the expansion of work in designing and producing special equipment for soldering, as well as apparatus for controlling processes and conducting research.

1/1

1/2 018 UNCLASSIFIED PROCESSING DATE--23JCT70  
TITLE--ALKYLATION OF PHENOL BY A PETROLEUM DISTILLATE OBTAINED FROM BAKU  
RAW MATERIAL IN THE PRESENCE OF A KU-2 ION EXCHANGE RESIN -U-  
AUTHOR--(04)-FATULLAYEV, A.N., GADZHIYEVA, Z.K., GSANDV, D.G., KZAYEV, R.G.

COUNTRY OF INFO--USSR

SOURCE--AZERB. NEFT. KHOZ. 1970, (1), 35-6

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--LUBRICATING OIL, LUBRICANT ADDITIVE, PHENOL, ALKYLATION, CRUDE  
OIL, PETROLEUM DEPOSIT, GEOGRAPHIC LOCATION, ION EXCHANGE RESIN/(U)KU2  
ION EXCHANGE RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3001/2070

STEP NO--UR/0437/70/000/001/0035/0036

CIRC ACCESSION NO--AP0127443

1970 1 23 11 14 11

2/2 018

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0127443

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE OPTIMUM ALKYLPHENOL YIELDS (45PERCENT) WERE OBTAINED WHEN CRUDE PHENOL (I) WAS CONTINUOUSLY ALKYLATED AT 140DEGREES WITH 2 VOLS. (BASED ON I) OF A S FREE PETROLEUM DISTILLATE (INITIAL B.P. 75DEGREES, 75PERCENT DISTO. AT 127DEGREES, FINAL B.P. 180DEGREES, D. 0.7420) ON A COLUMN OF ION EXCHANGE RESIN KU-2 IN NA FORM. THE UNREACTED PETROLEUM DISTILLATE WAS RECOVERED PRACTICALLY UNCHANGED. THE ALKYLPHENOL HAD SIMILAR PROPERTIES TO THE STD. LUBRICATING OIL ADDITIVE PRODUCED BY ALKYLATING I IN THE PRESENCE OF PHSO SUB3 H. .

UNCLASSIFIED

USSR

UDC 51

GUBADOVA, F. A.

"Game Distribution Model"

V sb. Detcentralizovan. metody upr. (Decentralized Methods of Control--collection of works), Moscow, 1972, pp 64-71 (from RZh-Kibernetika, No 12, Dec 72, Abstract No 12V308)

Translation: A study is made of the problems of information distribution in a large computation system simulated by a two-level game model.

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USSR

UDC: 621.375.7.001.5

VYSTAVKIN, A. N., GUBANKOV, V. N., KUZ'MIN, L. S., LIKHAREV, K. K., MIGULIN, V. V.

"Concerning the Particulars of Parametric Regeneration in Superconducting Point Contacts"

Moscow, Radiotekhnika i Elektronika, Vol 17, No 4, Apr 72, pp 896-899

Abstract: The authors analyze parametric interactions in a point contact for the microwave case of open-circuit combination frequencies. The analysis is based on the equivalent circuit of the point contact proposed in a previous paper (A. N. Vystavkin et al., Radiotekhnika i Elektronika, Vol 15, No 11, 1970, p 2404). It is found that there is a region of negative resistance with a smooth transition to a region of synchronization. The consequences and region of applicability of this effect are discussed.

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1/2 021 UNCLASSIFIED PROCESSING DATE--11SEPT  
TITLE--ANOMALY OF THE ELECTRICAL CONDUCTIVITY OF FERROELECTRIC  
SEMICONDUCTORS NEAR THE CURIE POINT -U-  
AUTHOR--GUBANOV, A.I., SHUR, M.S.  
COUNTRY OF INFO--USSR  
SOURCE--FIZ. TVERD. TELA 1970, 12(2), 664-6  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--SEMICONDUCTOR CONDUCTIVITY, FERROELECTRIC MATERIAL, ELECTRIC  
CONDUCTIVITY, CURIE POINT  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--1988/0259 STEP NO--UR/0181/70/012/002/0664/0666  
CIRC ACCESSION NO--AP0105333

2/2 021  
CIRC ACCESSION NO--AP0105333

UNCLASSIFIED

PROCESSING DATE--11SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. UNDER CERTAIN CONDITIONS IN FERROELEC. SEMICONDUCTORS, THE ELEC. COND. CAN INCREASE SHARPLY IN THE REGION OF VALIDITY OF THE CURIE WEISS LAW. VARIATION OF ELEC. COND. IS DUE TO VARIATION IN THE CONC. OF POLARONS IN THE COND. BAND AND VARIATION OF MOBILITY AND THE BOHR RADIUS OF POLARONS IN THE REGION OF THE CURIE POINT. NUMERICAL EXAMPLES ARE GIVEN.

1/2 032 UNCLASSIFIED PROCESSING DATE--11DEC70  
TITLE--CHOICE OF OPTIMAL REGIMES FOR SMOOTHING FACE SURFACES OF ALUMINUM  
PISTON VALVES -U-  
AUTHOR--(02)-GUBANOV, A.P., GONCHARENKO, V.G.

COUNTRY OF INFO--USSR

SOURCE--TR. SARATOVSK. IN-TA MEKHANIZ. S. KH. (TRANSACTIONS OF THE SARATOV  
REFERENCE--EFFEKTIVNYY ZHURNALPOVIGATELI VNUTRENNEGO SGOBANIYA, NO 4,  
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR, PROPULSION  
AND FUELS  
TOPIC TAGS--SURFACE PROPERTY, ALUMINUM, METAL POLISHING, METAL GRINDING,  
TRACTOR, CARGO TRUCK, INTERNAL COMBUSTION ENGINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY FICHE NO----FD70/005031/PC6 STEP NO--UR/0000/70/000/042/0049/0055

CIRC ACCESSION NO--ARC141988

UNCLASSIFIED



2/2 032

UNCLASSIFIED

PROCESSING DATE--11/01/01

CIRC ACCESSION NO--AR0141988

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FORCE OF SMOOTHING SIGNIFICANTLY AFFECTS SURFACE ROUGHNESS. SMALL SMOOTHING FORCE DOES NOT ENSURE ADEQUATE DEFORMATION OF THE SURFACE LAYER, LEAVING TRACKS FROM PREVIOUS MACHINING. AN EXTREME INCREASE IN FORCE LEADS TO WARDENING OF FINISH AND EVEN TO FAILURE OF SURFACE LAYER REHARDENING. REPEATED PASSES AFFORD ONLY A SLIGHT RISE IN SURFACE FINISH CLASS. REDUCTION OF ROUGHNESS IS OBSERVED UP TO FIVE PASSES. FURTHER PASSES DETERIORATE THE SURFACE CONDITION AND LEAD TO REHARDENING. THE SURFACE FINISH CLASS AFTER HARDENING IS DETERMINED BY THE QUALITY OF THE PREVIOUSLY PREPARED SURFACE. REDUCTION OF ORIGINAL ROUGHNESS LEADS IN COURSE TO LESSEK FINAL ROUGHNESS; HOWEVER, THE MORE PLASTIC THE METAL, THE LESS DOES ORIGINAL ROUGHNESS AFFECT FINAL ROUGHNESS. SURFACE ROUGHNESS DEPENDS ONLY SLIGHTLY ON SMOOTHING RATE. IN CHOOSING RATES, MACHINING PRODUCTIVITY MUST PRIMARILY BE TAKEN INTO ACCOUNT, AS WELL AS THE POSSIBILITIES OF THE MACHINE TOOL, HAND TOOL, AND THE ACTUAL SMOOTHING PROCEDURE ITSELF WITH THE LARGE NUMBER OF PASSES (UP TO FIVE). AS TO ITS RANK IN THE TECHNOLOGICAL PROCESS, SMOOTHING IS COMPARABLE WITH SUCH MACHINING METHODS AS SUPERFINISH, MICROHONING, POLISHING, FINAL GRINDING, AND SO ON. SMOOTHING IS A MACHINING METHOD THAT IS APPLICABLE BOTH IN MASS AND LARGE LOT, AS WELL AS IN CUSTOM AND SMALL LOT PRODUCTION. THERE ARE GROUNDS TO CLAIM THAT THE SERVICE LIFE OF THE COUPLING PISTON RINGS PISTON SLEEVE OF TRUCK TRACTOR ENGINES CAN BE MARKEDLY EXTENDED BY SMOOTHING DUE TO HIGHER FINISH AND HARDNESS OF FACE SURFACES OF GROOVES.

UNCLASSIFIED

USSR

UDC: 621.791.793

KROSHKIN, V. A., TSAREVSKIY, V. V., KABANOV, N. M., MAKSHANOV, V. S., FEDOSEYEV, B. A., GEYNISH, Z. V., GORKUNTENKO, G. N., and GUBANOV, A. S., All-Union Scientific Research, Planning Technological Institute of Chemical Petroleum Equipment

"Electro-Slag Welding With Concomitant Normalization by the Induction Method"

Kiev, Avtomaticheskaya Svarka, No 10, Oct 73, pp 48-51

Abstract: The authors study methods for increasing the resistance to brittle fracture of joints made from low-alloy grades of steel and which were electro-slag welded. The results show that the coincidence of the heat cycles ensures the required impact strength for all joint zones up to 80 mm thick down to  $-70^{\circ}\text{C}$  during the pilot introduction of the new technology for the electro-slag welding of the 09G2S grade steel. The developed industrial frequency, induction unit makes it possible to coincide the heat cycles of electro-slag welding with the concomitant normalization of the longitudinal and annular seams on large and small equipment made from cold-resistant and heat-resistant, low-alloy grades of steel. Further study is required to select the optimal heat cycles for electro-slag welding and normalization of joints as a function of thickness and steel grade.

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UDC 633.511:632.4

USSR

GUBANOV, G. Ya., Institute of Selection and Cotton Seed Growing, Ministry of Agriculture USSR, Tashkent Oblast

"Effect of Air Temperature on the Spread of Verticillium Wilt in Cotton"

Moscow, Sel'skokhozyavstvennaya Biologiya, Vol 4, No 5, pp 724-726

Abstract: The effect of the air temperature on the development and spread of verticillium wilt in cotton was studied in six varieties of the plant, three resistant and three susceptible to the disease. Despite the difference in the degree with which the cotton varieties are affected the character of its spread is the same. It usually begins to develop and spread with the arrival of the flowering phase, and continues to spread practically until the vegetation completion. The number of diseased plants does not increase in a regular manner and varies throughout different years depending on temperature variations. An elevation of temperature to 34-35° C inhibits the development of verticillium wilt. The interrelation between the tempo of the spread of the wilt and temperature elevation can be noted not only in each growing period but also in years with distinct temperature changes.

Acc. Nr.

AP0042049

Abstracting Service:

CHEMICAL ABST.

4/70

Ref. Code

4R0366

89693k Synthesis of thiocarbonyl fluoride by the co-pyrolysis of sodium perfluoropropionate with sulfur. Gubanov, V. A.; Dolgopolskii, I. M.; Brettske, E. B. (USSR). *Zh. Org. Khim.* 1970, 6(1), 185 (Russ). The pyrolysis at 600-700° of tablets prep'd. by compressing powd.  $F_3CCF_2CO_2Na$  with S, gave  $\leq 26\%$   $F_2CS$ ,  $CF_2:CF_2$ ,  $F_3CCF:CF_2$ , perfluorocyclobutane, and 1,1,2,2-tetrafluoro-3,4-dithiacyclobutane. All these products can be formed from  $F_2C$ : or by its reactions with S. CPJR

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REEL/FRAME

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